

# THE FACT FINDERS

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GRADES: 9-12

SUBJECTS: Social Studies (American History, Economics)

OBJECTIVE: Students will interpret various tables from the NASS data to address contemporary issues in agriculture and compare them with historical issues.

## BACKGROUND

In 1791, President George Washington received a letter from an Englishman named Arthur Young. Young had written to several farmers in the United States, requesting information on land values, crops, yields, livestock prices, and taxes. By personally conducting a mail survey and compiling the results, Washington was able to gather enough information to reply fully to his English correspondent. This was, in effect, the nation's first agricultural survey.

Between September 24 and November 18, 1791, Washington sent Young three letters that provided agricultural statistics on an area extending roughly 250 miles from north to south and 100 miles from east to west. The strip ran through an area which is today Pennsylvania, West Virginia, Maryland, Virginia, and the District of Columbia, where most of the young country's population lived.

Washington's reports to Young reflect some of the same concerns farmers have today. He worried that prices weren't keeping up with the cost of raising crops. He worried that some farmers weren't taking care of their land. He worried about the cost of transporting agricultural goods to markets and improving those routes.

Washington's legacy of surveying and reporting on the state of agriculture in our country continued during the Civil War, when the U.S. Department of Agriculture collected and distributed crop and livestock statistics to help farmers assess the value of the goods they produced. At that time, commodity buyers usually had more current and detailed market information than did farmers. This circumstance often prevented farmers from getting a fair price for the goods they produced on their farms. Producers in today's marketplace would be similarly handicapped were it not



VOCABULARY

statistics  
 agriculture  
 survey  
 analyze  
 data  
 comprehensive  
 uniform  
 index

for the information provided by USDA's National Agricultural Statistics Service (NASS).

The five-year census of agriculture is the most comprehensive, detailed information-gathering program for agriculture. It is a complete accounting of agricultural production in the United States and is the only source of uniform, comprehensive agricultural data for every county in the nation. From 1840 to 1920 the census of agriculture was taken every 10 years. Since 1925 the census has been taken every five years (currently in the years ending in 2 and 7) to coincide with other economic censuses covering manufacturing, mining and construction. The 2002 Census of Agriculture is the nation's 26th census. Anyone who receives a census report form is required by law to complete and return it.

NASS requests information from farm operators on the following subjects:

- Land use and ownership.
- Irrigated land.
- Crop acreage and quantities harvested.
- Livestock and poultry.
- Value of products sold.
- Payments for participation in federal farm programs.
- Amount received from Commodity Credit Corporation loans.
- Number of hired farm workers.
- Operator characteristics.

Twenty-five percent of the report forms include additional questions on the following:

- Production expenses.
- Fertilizer and chemicals.
- Machinery and equipment.
- Market value of land and buildings.
- Income from farm-related sources.

Report forms are tailored for various parts of the country and are specific to the crops grown in a farmer's particular area.

Besides helping the farmer get a fair price for the goods produced on the farm, NASS survey and census data helps all of us as we plan for the future sustained by a safe and secure food supply.

Agribusinesses use the data to develop market strategies and to determine the most effective locations for service to agricultural producers. Farm organizations use it to evaluate and propose programs and policies that can help agricultural producers. Your elected representatives use census data to develop pro-



grams to protect and promote agriculture in the United States. Rural electric companies use the data to forecast future energy needs for agricultural producers and their communities. Colleges and universities use it in research programs to develop new and improved methods to increase agricultural production. State departments of agriculture use census and survey data to plan for operations during drought, and emergency outbreaks of diseases or infestations of pests.

NASS publications cover a wide range of subjects, from traditional crops, such as corn and wheat, to specialties, such as mushrooms and flowers; from calves born to hogs slaughtered; from agricultural prices to land in farms. Because of the amount of information produced by the agency, NASS has earned the title, "The Fact Finders of Agriculture."

### ACTIVITY

1. Share background information, and discuss data collection. Show students Tables A and B under Issue # 1, and explain the use of index numbers for reporting data. Explain that the tables show index numbers for the prices farmers paid out and received in the years 1993-2000. Rather than show actual prices, the numbers show how the prices paid and received between 1993 and 2000 compare with prices paid and received between 1990 and 1992. In the table, 100 stands for the average prices paid and received between 1990 and 1992, and the numbers for 1993-2000 show how the prices paid and received compare with the 1990-92 numbers. Have students use the chart to answer the following question: If farmers paid an average \$50 per bushel for feed in the years 1990-1992, how much did they pay for a bushel of feed in 1993? (100=\$50; price in 1993=\$50 X 104 percent)
2. Divide students into three groups, and assign one of the following topics to each group: "Prices Received by Farmers vs. Prices Spent;" "Cost of Labor vs. Land Value;" "Caring for the Land." Students will use the NASS data provided to prepare group statements that provide modern-day comparisons with the statements about agriculture in the United States that George Washington made in 1791.
3. Have each group share its findings with the class and prepare questions about the issues they are examining to lead class discussions on the assigned topics. If necessary, use some of the questions below to help keep the discussions going.



Why was agriculture so important to President Washington, as leader of a new nation, that he personally conducted a survey to gather information about it?

Washington told Arthur Young that, at that time, labor was more valuable to the American farmer than land. Who were the laborers? What special circumstances existed then that do not exist today? (slavery) Who are today's agricultural laborers? (often migrant, or immigrant workers) What special issues surrounding labor exist today? What has happened since 1791 to change farm labor and the value of land in our country? (industrial revolution, mechanization of much farm labor, population growth making land more valuable, westward expansion)

If farmers cannot earn enough money to make a living or even cover their costs, who will feed us?

In George Washington's time, nearly everyone had to farm in order to survive. Advances in technology since then have made it possible for fewer farmers to feed more people, freeing the rest of us for other pursuits—medicine, art, information technology, etc. Yet poor agricultural practices continue to be blamed for degradation of our soil, water and air. What are the solutions? Should everyone go back to growing his or her own food? Should we encourage more research to develop more measures like those shown in the data?

#### ADDITIONAL ACTIVITIES

1. Have students watch the media for stories about agriculture and go to the NASS Web site—[www.usda.gov/nass/](http://www.usda.gov/nass/)—to check the facts.
2. Much of Washington's report is concerned with wheat production. What are the top wheat-producing states in our nation today? (See NASS Web site.) Are any of the states included in Washington's report top wheat-producing states today? Why?



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# The Fact Finders

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## ISSUE # 1: PRICES RECEIVED BY FARMERS VS. PRICES SPENT

In a letter to Englishman Arthur Young in 1791, George Washington expressed a concern that foreshadows one felt by farmers today, the difficulty of making enough money on the sale of their crops and stock to pay for the cost of producing them.

... although our Agriculture, manufactures and commerce are progressing; although our taxes are light; although our laws are in a fair way of being administered well, and our liberties and properties secured on a solid basis by the general Government having acquired more and more consistency strength and respectability as it moves on; yet, that no material change in the prices of (lands, stock, and grain) has taken place, except in a few instances of Land, under peculiar advantages; nor is it probable there will be in the latter whilst there is such an immense territory back of us for the people to resort to.

Based on the data shown, what statement can you make about the trends in prices received for products and the costs of production? How are contemporary trends different from those George Washington reported? How are they the same?



**INDEXES OF PRICES RECEIVED BY FARMERS, UNITED STATES, 1993-2000**  
**PRICES RECEIVED (1990-92=100)**

	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
<b>ALL FARM PRODUCTS</b>	<b>101</b>	<b>100</b>	<b>102</b>	<b>112</b>	<b>107</b>	<b>102</b>	<b>96</b>	<b>96</b>
<b>ALL CROPS</b>	<b>102</b>	<b>105</b>	<b>112</b>	<b>127</b>	<b>115</b>	<b>107</b>	<b>96</b>	<b>96</b>
Food Grains	105	119	134	157	128	103	90	86
Feed Grains & Hay	99	106	112	146	117	100	86	86
Cotton	89	109	127	122	112	107	85	82
Tobacco	101	102	103	105	104	104	102	107
Oil-Bearing Crops	108	110	104	128	131	107	83	85
Fruit & Nuts	93	90	97	118	110	113	112	99
Commercial Vegetables	117	109	121	111	118	123	110	123
Potatoes & Dry Beans	107	110	107	114	90	99	100	93
All Other Crops	103	105	106	108	108	108	108	108
<b>Livestock &amp; Products</b>	<b>100</b>	<b>95</b>	<b>92</b>	<b>99</b>	<b>98</b>	<b>97</b>	<b>95</b>	<b>97</b>
Meat Animals	100	90	85	87	92	79	83	94
Dairy Products	98	99	98	114	102	119	110	94
Poultry & Eggs	105	106	107	120	113	117	110	107
<b>Food Commodities</b>	<b>102</b>	<b>98</b>	<b>99</b>	<b>108</b>	<b>105</b>	<b>101</b>	<b>96</b>	<b>97</b>

Source: NASS, USDA



INDEXES OF PRICES PAID BY FARMERS, UNITED STATES, 1993-2000  
PRICES PAID (1990-92=100)

	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>	<u>2000</u>
<b>PRICES PAID BY FARMERS FOR COMMODITIES &amp; SERVICES, INTEREST, TAXES, &amp; WAGE RATES</b>	104	106	109	115	118	115	115	120
<b>PRODUCTION ITEMS</b>	104	106	108	115	119	113	111	116
Feed	102	106	103	129	125	110	100	102
Livestock & Poultry	104	94	82	75	94	88	95	110
Seed	101	108	110	115	119	122	121	124
Fertilizer	96	105	121	125	121	112	105	109
Agricultural Chemicals	109	112	116	119	121	122	121	120
Fuels	93	89	89	102	106	84	93	134
Farm Supplies & Repairs	107	109	112	115	118	119	121	124
Autos & Trucks	107	111	115	118	119	119	119	119
Farm Machinery	107	113	120	125	128	132	135	140
Building Materials	106	109	114	115	118	118	120	121
Farm Services	110	110	115	116	116	115	116	119
Rent	100	108	117	128	136	120	113	110
<b>INTEREST</b>	87	94	102	106	105	104	106	112
<b>TAXES</b>	108	106	109	112	115	119	120	123
<b>WAGE RATES</b>	108	111	114	117	123	129	135	140
<b>PRODUCTION ITEMS, INTEREST, TAXES &amp; WAGE RATES</b>	103	106	108	115	118	114	113	118

Source: NASS, USDA



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# The Fact Finders

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## ISSUE # 2: COST OF LABOR VS. LAND VALUE

President George Washington to Arthur Young, 1791 (in response to questions about agriculture in the U.S.)

An English farmer must entertain a contemptible opinion of our husbandry, or a horrid idea of our lands, when he shall be informed that not more than 8 or 10 bushels of Wheat is the yield of an Acre; but this low produce may be ascribed, and principally too, to a cause which I do not find touched by either of the Gentlemen whose letters are sent to you, namely, that the aim of the farmers in this Country (if they can be called farmers) is not to make the most they can from the land, which is, or has been cheap, but the most of the labor, which is dear, the consequence of which has been, much ground has been scratched over and none cultivated or improved as it ought to have been; Whereas a farmer in England, where land is dear and labor cheap, finds it his interest to improve and cultivate highly, that he may reap large crops from a small quantity of ground.

Compare land and labor costs in the different regions shown in the following charts. Where are labor costs highest? Lowest? Where are land values highest? Lowest? What conclusion can you draw about the value of land vs. the value of labor today as compared with Washington's time? What other trends do you notice in the data?





## HIRED WORKERS: WAGE RATES BY REGION AND UNITED STATES, 1995-1999

	Dollars per Hour				
	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>
NORTHEAST	7.08	7.27	7.22	7.42	8.34
Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont					
NORTHEAST II	6.44	6.78	6.94	7.53	7.73
Delaware, Maryland, New Jersey, Pennsylvania					
APPALACHIAN I	6.08	6.03	6.76	7.13	7.50
North Carolina, Virginia					
APPALACHIAN II	5.75	6.29	6.23	6.53	6.72
Kentucky, Tennessee, West Virginia					
SOUTHEAST	5.57	5.96	7.62	6.48	7.09
Alabama, Georgia, South Carolina					
FLORIDA	7.86	7.05	7.19	7.57	8.18
LAKE	6.93	7.02	7.31	7.39	8.09
Michigan, Minnesota, Wisconsin					
CORNBELT I	6.67	7.14	7.91	8.14	8.35
Illinois, Indiana, Ohio					
CORNBELT II	6.05	6.89	6.64	7.64	8.27
Iowa , Missouri					
DELTA	5.62	5.65	6.50	6.30	6.81
Arkansas, Louisiana, Mississippi					
NORTHERN PLAINS	6.22	6.51	7.73	7.60	7.66
Kansas, Nebraska, North Dakota, South Dakota					
SOUTHERN PLAINS	6.50	6.12	5.98	6.72	7.18
Oklahoma, Texas					
MOUNTAIN I	5.71	5.78	5.94	6.46	6.71
Idaho, Montana, Wyoming					
MOUNTAIN II	6.20	6.53	6.94	7.46	8.08
Colorado, Nevada, and Utah					
MOUNTAIN III	6.42	6.34	6.24	7.02	7.65
Arizona , New Mexico					
PACIFIC	6.98	7.44	7.36	7.89	8.02
Oregon, Washington					
CALIFORNIA	6.55	7.14	7.35	7.87	8.06
HAWAII	10.02	10.13	9.97	10.43	10.93
U.S.	6.49	6.76	7.10	7.00	7.84

Source: NASS, USDA

## NUMBER OF HIRED AGRICULTURAL WORKERS, 1995-1999

	1,000				
	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>	<u>1999</u>
NORTHEAST	42	33	40	37	40
Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont					
NORTHEAST II	33	35	41	29	37
Delaware, Maryland, New Jersey, Pennsylvania					
APPALACHIAN I	44	38	38	26	30
North Carolina, Virginia					
APPALACHIAN II	30	20	25	28	29
Kentucky, Tennessee, West Virginia					
SOUTHEAST	42	32	43	35	31
Alabama, Georgia, South Carolina					
FLORIDA	50	50	60	57	54
LAKE	64	59	63	59	55
Michigan, Minnesota, Wisconsin					
CORNBELT I	46	43	55	47	42
Illinois, Indiana, Ohio					
CORNBELT II	33	27	27	32	24
Iowa , Missouri					
DELTA	33	44	39	31	32
Arkansas, Louisiana, Mississippi					
NORTHERN PLAINS	23	36	27	41	29
Kansas, Nebraska, North Dakota, South Dakota					
SOUTHERN PLAINS	54	64	55	58	51
Oklahoma, Texas					
MOUNTAIN I	19	27	20	20	22
Idaho, Montana, Wyoming					
MOUNTAIN II	13	15	22	19	18
Colorado, Nevada, and Utah					
MOUNTAIN III	19	19	16	20	20
Arizona , New Mexico					
PACIFIC	56	46	61	64	58
Oregon, Washington					
CALIFORNIA	214	185	171	194	265
HAWAII	7	7	6	7	7
US	822	780	809	803	844

## Farm Real Estate: Average Value Per Acre, by Region and State, January 1, 1994-98

	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>
	Dollars				
NORTHEAST	2,160	2,200	2,220	2,240	2,280
Connecticut	5,950	5,950	5,950	5,950	5,950
Delaware	2,350	2,440	2,550	2,580	2,660
Maine	1,130	1,130	1,150	1,170	1,190
Maryland	3,050	3,100	3,110	3,150	3,180
Massachusetts	5,020	5,060	5,100	5,150	5,210
New Hampshire	2,250	2,250	2,250	2,250	2,250
New Jersey	6,950	7,000	7,100	7,100	7,000
New York	1,260	1,280	1,260	1,250	1,280
Pennsylvania	2,150	2,200	2,270	2,300	2,390
Rhode Island	6,400	6,500	6,500	6,500	6,500
Vermont	1,400	1,450	1,490	1,500	1,520
LAKE STATES	985	1,050	1,130	1,200	1,280
Michigan	1,210	1,330	1,420	1,530	1,670
Minnesota	914	950	1,030	1,090	1,160
Wisconsin	968	1,040	1,130	1,170	1,240
CORN BELT	1,320	1,430	1,510	1,610	1,730
Illinois	1,670	1,820	1,900	1,980	2,130
Indiana	1,500	1,620	1,740	1,870	2,060
Iowa	1,280	1,350	1,450	1,600	1,700
Missouri	825	880	950	1,010	1,070
Ohio	1,560	1,750	1,820	1,890	2,040
NORTHERN PLAINS	428	453	463	481	499
Kansas	503	535	553	565	577
Nebraska	550	580	610	620	645
North Dakota	353	373	383	390	401
South Dakota	286	302	310	325	348
APPALACHIAN	1,320	1,430	1,550	1,630	1,720
Kentucky	1,140	1,250	1,300	1,350	1,450
North Carolina	1,610	1,750	1,900	2,000	2,080
Tennessee	1,250	1,340	1,530	1,650	1,810
Virginia	1,590	1,720	1,840	1,880	1,920
West Virginia	869	920	980	1,050	1,090
SOUTHEAST	1,410	1,520	1,580	1,630	1,700
Alabama	1,120	1,260	1,320	1,360	1,440
Florida	2,060	2,110	2,150	2,200	2,240
Georgia	1,150	1,260	1,360	1,430	1,510
South Carolina	1,200	1,340	1,360	1,400	1,480
DELTA STATES	913	973	1,020	1,070	1,130
Arkansas	927	983	1,010	1,070	1,150
Louisiana	1,000	1,080	1,180	1,190	1,210
Mississippi	836	886	917	980	1,050
SOUTHERN PLAINS	515	529	541	557	596
Oklahoma	517	547	547	570	610
Texas	515	525	540	554	593
MOUNTAIN	338	362	383	399	415
Arizona	810	840	880	920	987
Colorado	479	520	558	590	618
Idaho	780	840	900	960	1,020
Montana	254	277	289	291	294
Nevada	268	289	332	366	392
New Mexico	198	209	212	215	217
Utah	690	710	740	780	807
Wyoming	180	192	206	215	222
PACIFIC	1,510	1,540	1,670	1,730	1,780
California	2,210	2,220	2,400	2,500	2,610
Oregon	747	844	928	960	960
Washington	1,020	1,070	1,120	1,160	1,190
48 STATES	798	844	887	926	974

Source: NASS, USDA

Name \_\_\_\_\_

# The Fact Finders

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## ISSUE # 3: CARING FOR THE LAND

President George Washington to Arthur Young, 1791 (in response to questions about agriculture in the U.S.)

An English farmer must entertain a contemptible opinion of our husbandry, or a horrid idea of our lands, when he shall be informed that not more than 8 or 10 bushels of Wheat is the yield of an Acre; but this low produce may be ascribed, and principally too, to a cause which I do not find touched by either of the Gentlemen whose letters are sent to you, namely, that the aim of the farmers in this Country (if they can be called farmers) is not to make the most they can from the land, which is, or has been cheap, but the most of the labor, which is dear, the consequence of which has been, much ground has been scratched over and none cultivated or improved as it ought to have been; Whereas a farmer in England, where land is dear and labor cheap, finds it his interest to improve and cultivate highly, that he may reap large crops from a small quantity of ground. That the last is the true, and the first an erroneous policy, I will readily grant, but it requires time to conquer bad habits, and hardly anything short of necessity is able to accomplish it. That necessity is approaching by pretty rapid strides.

Washington criticizes farmers of his day for taking the abundance of land available for granted and not caring for it properly. American farmers had to learn the hard way that this resource was not limitless, although it may have seemed so in Washington's time. Look at the charts that follow and prepare a statement about the American farmer's conservation practices,\* compared with those Washington reports in his letter.

Based on the information here, how are agricultural practices different today? How are they different?

\*The charts report use of Integrate Pest Management (IPM) practices for different crops. IPM is a system of pest management aimed at reducing agricultural losses caused by pests using methods that cause minimal environmental damage and little or no health risk.

## Percent of U.S. Farms Receiving Integrated Pest Management Practices, 2000

	<u>Fruits and Nuts</u>	<u>Cotton</u>	<u>Vegetables</u>	<u>Soybeans</u>
<b>PREVENTION PRACTICES</b>				
Tillage/etc. to manage pests	47	65	49	48
Remove or plow down crop residue	22	58	49	21
Clean implements after fieldwork	27	69	31	47
Water management practices	20	43	34	15
<b>AVOIDANCE PRACTICES</b>				
Adjust planting/harvesting dates	12	42	13	15
Rotate crops to control pests	6	48	67	75
Alternate planting locations	4	36	34	24
Grow trap crop to control insects	4	16	4	2
<b>MONITORING PRACTICES</b>				
Scouted for pests	51	72	50	44
Records kept to track pests	24	56	15	18
Field mapping of weed problems	11	27	17	20
Soil analysis to detect pests	15	32	14	19
Pheromones to monitor pests	16	35	5	1
Weather monitoring	35	39	26	25
<b>SUPPRESSION PRACTICES</b>				
Scouting used to make decisions	29	49	11	21
Biological pesticides	19	36	19	5
Beneficial organisms	17	21	22	2
Maintain ground cover				
or physical barriers	26	22	40	19
Adjust planting methods	10	7	27	14
Alternate pesticides	44	58	43	34
Pheromones to disrupt mating	10	15	3	*

\*Insufficient reports to publish data

Source: NASS, USDA

# The Fact Finders (possible answers)

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Issue # 1: Based on the data shown, what statement can you make about the trends in prices received for products and the costs of production? How are contemporary trends different from those George Washington reported? How are they the same?

Prices received for products have gone down while the costs of production have gone up. The largest decrease in prices received was for food grains. The largest increase in expenses was for farm machinery and wage rates.

Issue # 2: Based on the data shown, where are labor costs highest? Lowest? Where are land values highest? Lowest? What conclusion can you draw about the value of land vs. the value of labor today as compared with Washington's time? What other trends do you notice in the data?

Labor costs are highest in Hawaii, the Corn Belt, and the Northeast. They are lowest in the Mountain states of Idaho, Montana and Wyoming and the Delta states of Arkansas, Louisiana and Mississippi and the Appalachian states of Kentucky, Tennessee and West Virginia. Farm real estate is highest in the Northeastern states of Connecticut, New Jersey and Rhode Island. and lowest in the Plains states and Mountain states. Wages paid to workers and the total number of workers have risen slightly. The cost of real estate has risen. Mechanization of much farm work has reduced the need for labor. Land is probably worth more than labor today, as compared with Washington's time.

Issue # 3: Look at the data and prepare a statement about the American farmer's conservation practices, compared with those Washington reports in his letter.

Some American farmers have started to use practices that help conserve the soil, although in most cases, according to the data presented, it is less than 50 percent of all farmers. Scouting for pests was the most popular conservation practice, especially among cotton producers. Cotton producers were also most likely to use prevention practices like tillage and cleaning implements after field work. Soybean producers were most likely to rotate crops.

